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Description of vowel in the first grammatical work of Tamil and Arabic: A contrastive analysis

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Abstract

Tolkāppiyam and Al-Kitāb, these two grammatical texts are belonging to two different languages Tamil and Arabic. Tamil is a Dravidian family and Arabic is a Semitic family with different writing systems (Tamil-left to right; Arabic-right to left). These two grammatical texts are written in different historical period, Tolkāppiyam written in BC 300 and Al-Kitāb written in AD 800. Both are describes the vowels of respective language through different phonetic features. The main aim of this paper is to evaluate and analyze the articulatory treatment of vowels in the perspective of first grammatical work of respective languages. The first section of the paper is evaluating the articulatory treatment, theory, classification and phonetic frameworks of vowels in respective grammars, and the second section analyzing in contrastive and describes the commonness and differences between these two texts. This section finds out the commonness in the following features: articulatory treatment, descriptive and use of technical terms etc. The differences are found in the following features: order of the description of speech sounds, method of classification of vowels etc.

Keywords: *Al-Kitāb, Arabic vowels, Classification of vowels, Sībawayhi, Tamil vowels, Tolkāppiyam, Tolkāppiyar.*

Abstrak

Tolkāppiyam dan Al-Kitab adalah dua teks gramatikal yang menggunakan dua bahasa yang berbeda, yakni Tamil dan Arab. Ditinjau dari aspek rumpun bahasa, Tamil merupakan keluarga bahasa Dravida, sedangkan Arab adalah keluarga bahasa Semit. Sistem penulisan kedua bahasa itu berbeda bahasa Tamil memiliki sistem penulisan dari arah kiri ke kanan; sedangkan bahasa Arab memakai sistem penulisan dari arah kanan ke kiri. Kedua teks tata bahasa itu ditulis dalam periode sejarah yang berbeda, Tolkāppiyam ditulis dalam SM 300 dan Al-Kitab yang ditulis dalam AD 800. Keduanya menunjukkan vokal bahasa masing-masing, melalui fitur fonetik yang berbeda. Tujuan utama dari artikel ini adalah untuk mengevaluasi dan menganalisis cara artikulasi vokal dalam perspektif tata bahasa, bahasa itu. Bagian pertama dari tulisan ini mengevaluasi cara artikulasi, teori, klasifikasi dan kerangka fonetik yang menunjukkan bunyi-bunyi vokal dalam tata bahasa masing-masing, dan bagian analisis kedua dilakukan tinjauan aspek kontrasif dan menggambarkan secara umum persamaan dan perbedaan antara dua teks tersebut. Pada kesempatan ini dipaparkan secara umum beberapa fitur antara lain: cara artikulasi, deskripsi dan penggunaan istilah teknis. Bertumpu kepada beberapa fitur itu terdapat perbedaan yang ditemukan dalam fitur itu, yakni: urutan deskripsi suara pidato, metode klasifikasi vokal dan beberapa fitur lainnya.

Kata kunci: *Al-Kitāb, vokal-vokal Arabic, klasifikasi vokal, Sībawayhi, vokal-vokal Tamil, Tolkāppiyam, Tolkāppiyar.*

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A. Introduction

Tolkāppiyam and other Indian descriptive grammars (*Kātantra*, AD.100; *Kaccāyana*, AD.700 etc.) generally describes the grammatical features with a treatment of phonology at the beginning. Also western descriptive linguistics usually starts the description of language with phonology. It is only the *Kitāb* treats the phonology in the last (Syntax – Morphology – Morphophonemic – Phonology). The reason is that it considered necessary to examine the larger units such as words and phrases first and then to discuss the smaller segments of speech.² There is different in the arrangement of phonology also. *Tolkāppiyam* describes the primary sounds (phone) in the order of vowels and then consonants; but the *Kitāb* describes in the reverse order, consonants first and then vowels. Tolkāppiyar's (Author of *Tolkāppiyam*) observations of phonetics found in first three chapters *Nūṇmarapu* (*Tolkāppiyam*-Eḷuttatikāram/ Tol. Elu.1-33), *Moḷimarapu* (Tol. Elu.34-82), *Pirappiyal* (Tol. Elu.83-102). Sībawayh's (Author of *Al-Kitāb*) observations of phonetics found in last seven chapters (ch.565-571). These two traditional grammarians describe the articulatory processes of the vowels and consonants in their respective grammars. Both are allotted separate chapters for the articulatory processes of the sounds. Tolkāppiyar describes the articulatory processes of vowels and consonants in the chapter of *Pirappiyal*. Sībawayh describes articulatory processes of vowels and consonants in the chapter of 565 (Hārūn Edition of *Al-Kitāb*/ HE., vol.4, pp.431-436).

²Michael G Carter. *Sībawayhi*, 2004, p.120.

B. Discussion

1. The Articulatory treatment of vowels in *Tolkāppiyam* and *Al-Kitāb*

Tolkāppiyar describes all cardinal vowels of Tamil. He followed traditional (standard) alphabetical order in his vowel description, and describes the points and manners of articulation systematically. Before, enter into the description of the points and manners of articulation of the sounds, he describes the general features (air chambers and articulators) of the speech production. In the beginning of third Chapter (*pirappiyal*), he explains the general features of the speech production in the first *nūrpa/sūtrā* (Tol. Elu.83) and defines the basic aspects of the manner of articulation of the vowels in second *nūrpa* (Tol. Elu.84). Tolkāppiyar says that the general features of the articulation of the vowels following, "All the twelve vowels, without changing their quality, are uttered with the air passing through the throat" (Tol. Elu.84). Other Tamil grammarians never mentioned this (general) feature of the vowels. Then, Tolkāppiyar classifies the manner of articulation of vowels in three ways. They are:

a. Oral (buccal) cavity / airy (Mid vowels)

b. Front-back variation of tongue (Front vowels)

c. Lip position (Back vowels)

a. Oral (buccal) cavity / airy:

Tolkāppiyar defines this manner of articulation for [a,a:]

a ā āyiran tarikān tiyalum (அ
ஆ ஆயிரண் டங்காந் தியலும்)
- Tol.Elu.85

[a,a:] those two, are uttered by
opening the mouth.

b. Front-back variation of
tongue:

Tolkāppiyar lists the five vowels in
this manner of articulation that [i, i:, e,
e: and ai]

i ī e ē ai ena icaikkum appāl
aintum avarrō ranna avaitām, anpal
mutalnā vilimpuural utaiya

(இஈஎஏஐயெனஇசைக்கும்
அப்பால் ஐந்தும் அவற்றோ
ரன்ன அவைதாம்,
அண்பல் முதல்நா விளிம்புறல்
உடைய) - Tol.Elu.86

The five vowels [i, i:, e, e: and ai]
pronounced in the same way (opening
the mouth) as the edges of the front of
the tongue touch the teeth ridge.

c. Lip position:

Tolkāppiyar's mention the manner
of articulation of the five vowels
[u,u:,o,o:,au] as following:

u ū o ō au e a icaikkum appāl
aintum ita kuvin tiyalum -
Tol.Elu.87

“உ ஊ ஒ ஓ ஔ என
இசைக்கும் அப்பால் ஐந்தும்
இதழ்குவிந் தியலும்”

The five sounds [u, u:, o, o:, au]
are pronounced by rounding the lips.

All the later Tamil grammarians
followed this classification of manner of
articulation. Pavananti muṇivar (Author
of *Nanṇūl*, AD.1300), Vaitṭiyanāta
tēcikar (Author of *Ilakkaṇaviḷakkam*,
AD.1700) and Muttuvīra upāttiyāyar
(Author of *Muttuvīriyam*, AD.1900)
are repeated Tolkāppiyar's definition
(*aṅkappu*, *aṇpal mutalnā viḷimpuural*,
italkuvivu) of the vowels as following:

aṅkappu (opening the mouth) for [a,
a:] (Tol.Elu.85).

Nanṇūl 76, *Ilakkaṇaviḷakkam* 11,
Muttuvīriyam 44.

aṇpal mutalnā viḷimpuural (the edges
of the front of the tongue touch the
teeth ridge) for [i, i:, e, e:, ai] (Tol.
Elu.86). *Naṇṇūl*
77, *Ilakkaṇaviḷakkam* 11, *Muttuvīriyam*
45.

italkuvivu (rounding the lips) for [u,
u:, o, o:, au] (Tol.Elu.87).

Nanṇūl 78, *Ilakkaṇaviḷakkam* 11,
Muttuvīriyam 46.

In the vowel description Tolkāppiyar
does not define all manner of articulation
of vowels. He only mentions the major
features of the vowels. The manner
of oral cavity (*aṅkappu*) is a main
feature of the in the [a,a:], front-back
variation of tongue (*aṇpal mutalnā*
viḷimpuural) is major feature in the
pronunciation of [i,i:,e,e:,ai] and the
lip position (*italkuvivu*) is major feature
of [u,u:,o,o:,au]. Tolkāppiyar mentions
only these three major features of the
manner of articulation for vowels.

Sībawayh describes only the long

vowels of Arabic. He mentions the sounds in phonetic alphabetic order (basis points of articulation of sounds). In the chapter 565, first he mentions twenty nine primary sounds of Arabic and then describes the points of articulation and classification of consonants. At last, he mentions classification and articulatory processes of vowels briefly (only eight lines in HE.,vol.4,p.435,436). After the classification of ‘tight’ and ‘slack’ consonants, he describes articulatory processes of vowels. In the description of vowels, first he classifies the vowels (soft and prolongation) and then defines the manner of articulation._

The early Arabic linguists seem to have not always organized their work systematically. They mingle different things together, and introduce the same points in more than one place. It is therefore normal to find a phenomenon being discussed in great detail, although no separate chapter is devoted to it.³ The vowel is one of these, especially the short vowel. Because they believe that a long vowel and its corresponding short vowel are the same except in duration, they appear to find it unnecessary to discuss the short vowels separately. And they does not discuss orderly, like Tolkāppiyar.

Arabic has six primary vowels, namely [a,i,u,a : ,i : ,u :] but Sībawayh does not discuss three short vowels. He gives status to their long counterparts only. He does not consider the short vowels as full sounds but as a part of long vowels. Sībawayh states that the short vowels, “all the short

3 Abdul Rahman Ibrahim Al-fozan, *Assimilation in Classical Arabic: A phonological study*, Ph.D. Dissertation, University of Glasgow, 1989, p.27.

vowels are from the long vowels” (HE.,vol.4,p.335), so he describes the articulatory processes only for long vowels.

Sībawayh’s categorizes the manner of articulation of Arabic long vowels in three ways.

- a. Lip position (Back vowels)
- b. Tongue height (Front vowels)
- c. Oral (buccal) cavity / airy (Mid vowels)

- a. Lip position: You may round your lips in the Wāw [u:].

“لأنك قد تضم شفّيتك في الواو”

- HE.,vol.4,p.336

- b. Tongue height: Raise your tongue towards the palate in the Yā [i:].

“وترفع في الياء لسانك قبل الحنك”

- c. Oral (buccal) cavity / airy: Sībawayh defines the points of articulation of middle vowel [a:] in airy, he calls the [a:] as *al-hā-wi* (الهاوى). It means airy sound.

1. Tolkāppiyar’s theory in the treatment of vowels

Tolkāppiyar describes the phonetic features of vowels in three ways,

- a. Classification, b. List/order and c.Manner of articulation. After the list of primary and secondary sounds, mention

the classification of vowels as short and long on the basis of time duration. He explains the short and long vowels in following methods:

a. Classification of vowels (Tol.Elu.3,4)

Name of the sounds [a i u e o / a: i: u: e: ai o: au]

Total number of the sounds (aintum / ēlum)

Time duration of the sounds (ōralapu / īralapu)

Category of the sounds (kurreluttu / neṭṭeluttu)

Quotation (eṇpa)

Tolkāppiyar uses the same method and order in the description of both short and long vowels. First, he enumerate the name of sounds [a i u e o / a: i: u: e: ai o: au] and mention the total number (aintum / ēlum) and then gives the duration (mātra), (ōralapu / īralapu) and then classifies that as short and long (kurreluttu / neṭṭeluttu) based on the formulation of early allies (eṇpa).

b. List of vowels (Tol.Elu.8)

Last sound (au) of the vowels in standard alphabetical order (aukāra)

Total sounds in number (paṇṇireluttum)

Category of the sound (uyireṇa)

Quotation (Molipa)

First, he mentions the last sound of the vowel list **au** (aukāra iṇuvāyp), then

he counts all the sounds of this group in number as twelve (paṇṇireluttum), then he classifies the vowel (uyir) and last, he makes it a quote as “Molipa”. He followed standard alphabetical order. Till **au** (last vowel), **aukāra iṇuvāyp** it means all the vowels (starting with **a** and ending with **au**), this method of description was found in only Tolkāppiyam. Tolkāppiyar used this method in both the order of enumeration of vowels (Tol.Elu.8) and consonants (Tol.Elu.9).

d. Manner of articulation of vowels (Tol.Elu.84-88)

Name of the sounds [a a: / i i: e e: ai / u u: o o: au]

Total number of the sounds (āyiraṇṭu / aintum)

Manner of articulation (aṇkappu / aṇpal mutalnā viḷimpuural / itakuvivu)

Tolkāppiyar uses the same method in the description of the manner of the all vowels. First, he enumerates the sounds, then sums them in number and last defines the manner of articulation.

Tolkāppiyar followed the standard method in the description of vowels. He deliberates the vowels in the following order: List of sounds, Numbering and explanation. Both of the classification and enumeration of the vowels are not his formulation, but it was followed already in Tamil linguistic tradition. The use of quetative particle “eṇpa”, “Molipa” indicate it may be his own formulation.

2. Sibawayh’s theory in the treatment of vowels

Sibawayh describes the phonetic features of the vowels in four ways. They:

- Common manner of articulation of vowels (HE., vol.4, p.176)
- Genetic relationship between the short and long vowels (HE., vol.4, p.242)
- Classification of vowels (HE., vol.4, p.435)
- Exact manner of articulation of each vowel (HE., vol.4, p.436)

Sibawayh does not mention the treatment systematically and also does not follow any standard order in the vowel description.

3. Classification of vowels

Tolkāppiyar describes the all vowels of Tamil (Tol.El.8) and he classifies them into two categories as short and long on basis of time duration (Tol.El.3). He lists the short vowels as five [a, i, u, e, o] the long vowels as seven [a:, i:, u:, e:, o:] respectively and he calls them *kurreluttu* and *neṭṭeluttu*. In the list of long sounds, *ai* and *au* are diphthongs.⁴ Tolkāppiyar describes the diphthong in the following sūtrā, “*akra ikara m-aikāramākum*” [a + i = ai] and “*akara ukara maikāramākum*” [a + u = au] (Tol.El.54, 55). Tolkāppiyar define the two secondary sounds (allophone) (Tol.El.2), *shortened i* (*kurriyal-ikaram*) and *shortened ū* (*kurriyal-ukaram*) and he does not include it in the list of vowel.

Table 1. Tolkāppiyar’s classification of vowels

Un-identifiable classification	Identifiable classification	Sounds	Total
Primary vowels	Short	a, i, u, e, o	5
	Long	a : , i : , u : , e : , o : ,	5
	Diphthong	ai, au	2
Secondary vowels (Allophones)	<i>kur<u>r</u>iyal-ikaram</i> <i>kur<u>r</u>iyal-ukaram</i>	<i>shortened i</i> <i>shortened ū</i>	2

⁴K.Murugaiyan, “Tolkāppiyariṇ oliyiyal koḷkai”, *Tolkāppiya molīyiyal*, 1972, p.34.

Tolkāppiyar classifies the vowels as short and long on the basis of time duration. He define the time duration *ōraḷapu* (one māttirai) for short vowels and *īraḷapu* (two māttirai) for long vowels. First he explains the short vowels and then long vowels (Tol. Eḷu.3,4). He classifies the vowels based short vowels.

Sībawayh divides the long vowels into two groups: first, the open vowel and second the close vowel. The open vowel is formed with wide mouth opening, where the distance between the tongue and the roof of the mouth is great. This is the case with the long vowel [a:], and he considers it to short counterpart [a]. Second, the close vowel is formed with narrow mouth opening. This is the case with both [i:] and [u:] and their counterparts [i] and [u]. he realize more specifically that the sound [i:] is more open than [u:] and less than

[a:], but it is more close to [u:] than to [a:]. In the case of the shape of the lips, the only primary rounded vowel is [u:] and-its counterpart [u]. Other vowels are unrounded. Al-Khalīl views that the short vowels is actually a part of long vowels. Sībawayh stresses this here.⁵

Table 2. Sībawayh's classification of vowels

Classification		a:	i:	u:
1	Softness (<i>layyina</i>)	-	+	+
2	Prolongation (<i>madd</i>)	+	-	-

4. Phonetics framework of vowels

Tolkāppiyar describes the vowels in three aspects, the manner of articulation (common manner; oral cavity, lip position, front-back variation of tongue), duration of vowels (Mātrā) (short and long) and the combination of vowels (diphthongs).

Table 3 Tamil vowels in Tolkāppiyar Phonetics Framework

Serial no.	Tamil symbols	IPA equivalents	Phonetic values	Articulatory features						
				Manners				Length (Mātrā)		Diphthongs
				Voiced	Oral cavity	Lip position	Front-back varia.of tongue	Short	Long	
1	அ	a	a	+	+	-	-	+	-	-
2	ஆ	a:	ā	+	+	-	-	-	+	-
3	இ	i	i	+	+	-	+	+	-	-

⁵Carter .M.G. Sībawayhi.2004,127.

4	ஈ	i:	î	+	+	-	+	-	+	-
5	உ	u	u	+	+	+	-	+	-	-
6	ஊ	u:	û	+	+	+	-	-	+	-
7	எ	e	e	+	+	-	+	+	-	-
8	ஏ	e:	ē	+	+	-	+	-	+	-
9	ஐ	ai	ai	+	+	-	+	-	+	+
10	ஓ	o	o	+	+	+	-	+	-	-
11	ஔ	o:	ō	+	+	+	-	-	+	-
12		au	au	+	+	+	-	-	+	+

Sibawayh describes the vowels in three aspects, manner of articulation (lip position, tongue height, oral cavity), classification of vowel (softness and prolongation) and genetic relationship between the short and long vowels.

Table 4 Arabic vowels in Sibawayh Phonetics Framework

Serial no.	Arabic symbols	IPA equivalents	Phonetic values	Articulatory features						Genetic relationship between the short and long vowels
				Manners				Length (Mātrā)		
				Voiced	Lip position	Tongue height	Oral cavity	Softness	Prolongation	
1	ا	a	a	+	-	+	-	-	-	ا
2	ي	i	i	+	-	-	-	-	-	ي
3	و	u	u	+	-	-	-	-	-	و
4	آ	a :	ā	+	-	-	+	-	+	آ
5	ي	i :	î	+	-	-	-	+	-	ي
6	و	u :	ū	+	+	-	-	+	-	و

5. Commonness in the articulatory treatments

- a. Tolkāppiyar and Sībawayh both are categorized the manner of articulation of vowels in three ways.

Tolkāppiyar:	Sībawayh:
i. Oral (buccal) cavity / airy (Mid vowels)	i. Lip position (Back vowels)
ii. Front-back variation of tongue (Front vowels)	ii. Tongue height (Front vowels)
iii. Lip position (Back vowels)	iii. Oral (buccal) cavity/airy (Mid vowels)

Tolkāppiyar and Sībawayh both are define the manner of articulation for mid vowels and back vowels similarly. In the manner of articulation of front vowels, Tolkāppiyar remarks front-back variation of tongue and Sībawayh remarks tongue height, also modern phoneticians considers these features of manner for the front vowels. They (Tolkāppiyar and Sībawayh) describe these three categories in different order.

- b. Tolkāppiyar describes only the major features of the manners of vowels and he considers all the other features additionally. Sībawayh also use same technique (he describes only the major features of manner of articulation of vowels) to describe the articulatory processes of vowels. It is displayed in the table 5.

Table 5. Major and Additional features of vowels by Tolkāppiyar and Sībawayh

Articulatory features of vowels		Tolkāppiyar		Vowels
Major features				
1	Tongue height	-	+	[i]
2	Front-back variations of tongue	+	-	[i, i:, e, e:, ai]
3	Lip position	+	+	[u, u:, o, o:, au] [u:] (Sīb.)
4	Oral cavity / airy	+	+	[a, a:] [a:] (Sīb.)
Additional features				
1	Nasalized	-	-	-
2	Advanced Tongue root	-	-	-
3	Tense /Lax	-	-	-
4	Pharyngealized vowel	-	-	-
5	Strident	-	-	-
6	Rhotic vowels	-	-	-
7	Fricative	-	-	-
8	Phonation	+	+	All vowels
9	Length	+	+	All vowels
10	Diphthongs	+	-	[ai, au]

Both are consider mainly the major features of the vowels, tongue height, front-back variations, lip position and the position of oral cavity. They consider also phonation, length and diphthong as additional features of vowels.

- c. Tolkāppiyar and Sībawayh both are consider the vowels are voiced. Tolkāppiyar stated for this sense as, *avvalip / Paṇṇī ruyirum tannilai tiriya / Miṭarṛup piranta vaḷiyin icaikkum* “All the twelve vowels, without changing their quality, are uttered with the air passing through the throat”.

7. Commonness in techniques

- a. Tolkāppiyar and Sībawayh both are enumerate the sounds and mention total in numbers.

Tolkāppiyar and Sībawayh not only describe the manner of articulation of the vowels, but also enumerate the sounds and their total number.

āyiraṇṭu [two] (Tol.Elu.85), *appāl aintum* [five](Tol.Elu.3, 86, 87), *appāl ēlum* [seven] (Tol.Elu.4) and *paṇṇireluttum* [twelve sounds] (Tol.Elu.8). No other Tamil grammarian used this method of description. Sībawayh also enumerates the sounds and gives the total in number at all places of listing, for example, “فأصل حروف العربية، تسعة وعشرون حرف” [Twenty-nine basic sounds of Arabic] (HE.,vol.4,p.431).

- b. Both of them do not used particular term for speech sound.

Tolkāppiyar use the term *eluttu* (எழுத்து) for speech sound and he used the same term for the following senses phone, phoneme and grapheme. Most of the places he use this in the sense of phoneme. Sībawayh used the term *ḥarf* (حرف) as a speech sound. This term is also used in the Kitāb for concepts such as, phone, phoneme, grapheme, syllable, particle, word and *hamza* (a glottal stop).⁶ In the Qur’an it is used to mean dialect.⁷ In modern times both of these two terms, *eluttu* and *ḥarf* means the same *letter* in respective languages.

- c. Using the technical terms in the classification of vowels:

Both of them used technical terms for short and long vowels. Tolkāppiyar classifies all short vowels are *Kurreluttu* and long vowels are *Netteluttu*. Sībawayh describes only three long vowels and he classifies them into two categories soft and prolongation. He termed *Līn* for soft vowels and *Madd/Hāwī* for prolongation. The technical term of prolongation (*Madd*) is similar to Tolkāppiyar’s *Netteluttu*. The terms *Netteluttu* and *Madd* literally similar.

8. Differences in the order of description

- a. Order of the treatment of language

Both of them describe the data in the target language in following order:

⁶ A.A.Al-Nassir, *Sibawayhi the Phonologist: A critical study of the phonetics and phonological theory as presented in his treatise Al-Kitab*, 1993, p.10.

⁷ Ibid.

Tolkāppiyar: Phonology – Phonetics
 – Morphophonemic – Morphology –
 Syntax – Semantics

Sībawayh: Syntax – Morphology
 – Morphophonemic – Phonetics –
 Phonology

b. The order of the treatment of speech
 sounds

Tolkāppiyar: Vowel – Consonant –
 Allophone.

Sībawayh: Consonant – Allophone
 – Consonant – Vowel – Consonant.

Tolkāppiyar describes the points and
 manners of articulation systematically.
 He classifies the speech sounds clearly
 as primary and secondary. In the
 primary sounds, first he explains the
 manners of articulation of the twelve
 vowels and then he describes the details
 of points and manners of articulation
 of the eighteen consonants and the last
 he defines the points and manners of
 articulation of three secondary sounds.
 All the later Tamil grammarians
 follow the same method of description
 (vowel-consonant-allophone). They are
 describing the following order: vowels,
 consonants and secondary sounds.
 Tolkāppiyar followed this order in the
 enumeration of sounds (Tol.Elu.1), time
 duration (Tol.Elu.3,4,11), classification
 of sounds (Tol.Elu.8,9) and articulatory
 processes of the sounds (Tol.Elu.85-
 101).

Sībawayh describes the Arabic
 sounds in opposite order; he also
 classifies the speech sounds as
 primary and secondary, but he does
 not classify primary sounds clearly
 like Tolkāppiyar. Sībawayh does not
 follow any standard order. So, he

discusses the sounds in the following
 order: consonant (HE.,vol.4,p.431)
 – allophone (HE.vol.4, p.432) –
 consonant (HE.,vol.4,pp.433-436) –
 vowel (HE.,vol.4,p.436) – consonant
 (HE.,vol.4,p.436).

c. The order of vowel treatment

Tolkāppiyar:

Classification of the vowels
 on the basis of time duration (Tol.
 Elu.3,4)

List of total vowels (Tol.Elu.8)

General manner of articulation
 of the vowels (Tol.Elu.84)

Manner of articulation of the
 vowels (Tol.Elu.85,86,87)

Sībawayh:

Sībawayh does not follow
 any standard method in
 description of vowels. In the
 articulatory treatment of vowels
 (HE.,vol.4,p.435-436), Sībawayh
 intermingle with manner and
 classification. He mentions the
 vowel features in following order:
 general manner, exact manner
 of each vowel and the last, he
 repeats the general manner of
 three_vowels.____

9. Differences in theories and techniques

a. Theory of vowel description

Tolkāppiyar describes the vowels
 systematically in all the places of

vowel description.

In the list of vowels (Tol.Elu.8)

Last sound of the vowel in
standard alphabet order (*aūkāra*)

Total sounds in number
(*panṇīreluttum*)

Category of the sound (*uyireṇa*)

First, he mentions the last vowel *au* in the standard alphabetical order; he mentions shortly *aūkāra iṛuvāy*, which means end with *au*. Then he gives the total number. Indian grammarians are used *sūtrā* style description of language; also there are Meta grammatical conventions (like *ukti*) in the composition of grammatical works. But Arab grammarians follow prose style to describe the language. Sībawayh does not follow any standard method in vowel description. In the description of common manner of articulation of the vowels, first he mentions the vowels and then gives the general feature of manner of articulation.

In the description of exact manner of articulation of vowels, first he mentions the exact manner of articulation of each vowel and then gives the respective vowels. In repeated common manner of vowel description (last line of vowel description) (HE.,vol.4,p.436), first he mention the total number of vowels (as three), then gives common manner (as airy) and the last mention all (three) vowels (as *a: i: u:*).

b. Concepts of vowel classification

Tolkāppiyar: basis short vowels and
time duration.

Sībawayh: basis long vowels and
time duration.

Tolkāppiyar classifies the vowels short and long based on time duration. *ōraḷapu* (one *māttirai*) for short vowels and *īraḷapu* (two *māttirai*) for long vowels. First he defines the short vowels and then long vowels (Tol. Elu.3,85,86,87).

Sībawayh gives only three long vowels and does not give the three correspondence short vowels. He does not consider short vowels as full sounds, but as part of the long vowels. Later Arab grammarian Ibn Jinni also calls the short vowels as *aṣwāt nāqīṣah* (incomplete sounds). A short vowel is a part of long vowel it's the vowel concept of Sībawayh. It is probable that this attitude has influenced by the alphabetical system of Arabic, which does not include characters for the short vowels.⁸ But, both are (Tolkāppiyar and Sībawayh) indicated the time duration is main difference between short and long vowels. Tolkāppiyar defines time duration (*māttirai*) of the vowels very clearly in *nūṛpas/sūtras* 3, 4 and 5. Sībawayh does not mention time duration of the vowels openly.

3. Tolkāppiyar and Sībawayh both identify the vowels are voiced. Sībawayh calls voiced sounds as *Majhūr* and unvoiced as *Mahmūs*. Tolkāppiyar does not use any technical terms for voiced and unvoiced.

⁸ A.A.Al-Nassir, *Sibawayhi the Phonologist: A critical study of the phonetics and phonological theory as presented in his treatise Al-Kitab*, 1993, p.29.

A. Conclusion

Tolkappiyar's description of Tamil phonetics is authentically as opined by Panampāranar, "Produced the phonemic features with no disorder" (*Mayaṅkā marapiṇ eḷuttumurai kāṭṭi* /மயங்காமரபின் எழுத்துமுறை காட்டி). In the description of vowels, Tolkāppiyar divides the vowels (Tol.Eḷu.3 and 4) as short and long and then he mention the list of vowels (Tol.Eḷu.8). He changes this order in the description of consonants. Here, first he mention the list of consonants (Tol.Eḷu.9) and then he divides the consonants (Tol.Eḷu.19,20 and 21) as stop (*Valleḷuttu*) nasal (*Melleḷuttu*) and others (fricative, lateral etc.) (*Itaiyeḷuttu*). He gives the total number of sounds in the classification of vowels, does not follow this method in the classification of consonants. The list of sounds and the classifications are followed from Tamil linguistic tradition, but the points and manners of articulation of sounds are defined by Tolkāppiyar from his own knowledge. Tolkāppiyar not only describes the points and manners of articulation, also gives the total numbers of sounds as, *āyiraṇṭu*, *appāl aintum* etc. This method is very useful to verify the sounds. Sībawayh does not speak about articulatory strength in his investigation of the vowels in context. Instead he deals with the ease of articulation of these vowels. He considers the open vowels are easiest to articulate, the front vowels less easy, and the back vowels least easy (HE.,vol.4,pp.119,167). This classification seems to be phonetically based, since the tongue is least involved in producing the open vowels, more involved in producing the front vowels and both the tongue and the lips are

involved in producing the back rounded vowels. The true semi-vowels are [w] and [y], with [ā] dealt with separately and termed *hāwī*, because it is a completely open sound, unlike [w] and [y], which involve some construction by the lips and tongue respectively. Sībawayh discussed vowels in conjunction with consonants in respect of the place of articulation. He considers vowels are voiced.

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